to the mosaic of the design, and the painter played only a secondary part to the glazier in the construction of a window; but as time went on and the demand for pictorial treatment grew greater, the painter rose in importance and the window became more and more nearly a picture. The medallion of the Pascal Lamb shows the first phase of this tendency at work. The deep blue background of the Coronation of the Virgin has given way to a pattern of paint on a clear ground, a method called grisaille and sometimes used to fill whole windows where colored glass would have allowed too little light to penetrate.

It was shortly after the period of the quatrefoils under consideration that another method of painting glass was discovered, and a yellow stain was added to the palette of the glass-maker. The pot metal yellows of the thirteenth century were dark and with a ruddy tinge, but in the next hundred years it was found that a clear, bright, golden hue could be procured by painting the surface with a silver solution. The color when fired was incorporated with the glass, but rested very thinly on the surface and so interfered little with the passage of light. It came to be the distinguishing feature of all later glass, and in this connection it is interesting to note that glass so painted stands the test of time better than any other, as the yellow stain seems to protect the surface from corrosion.

The art of stained glass, as well as the kindred art of mosaic, is of course judged by very different standards from those set up for picture-painting. When the later glass workers tried to rival the painters on canvas, it was to the detriment of a great art, and with a complete mastery of pictorial methods, stained glass sank to an insignificant position. The glaziers of the thirteenth century knew their limitations and confined themselves to subjects that could be expressed in two dimensions only, without realistic modeling and relying largely on the use of color for dramatic effect.

The medallions in the Museum illustrate what remarkable results were obtained with imperfect materials. The glass is filled with bubbles, the surface is rough, and no two pieces of one color are the same shade. But it is really these defects which lend that life, variety, and sparkle to the glass of this age that is missing in the more perfect product of a later time. The dominant colors are blue, ruby, green, yellow, and a bottle green, which served for white. This last color is used sparingly in the best period and can be found oftenest as a border dividing the colored medallions from the background. An interesting feature is the leads, which are very old and presumably the original ones, a very rare occurrence.

With some smaller pieces of the same period, the new quatrefoils have been incorporated in a single window and placed in the room which contains the very fine example of early thirteenth-century glass representing Abiud, one of the ancestors of Christ. This window is in the style of the clerestory lights in St. Remi at Reims, and is typical of one of the vanished treasures of that venerable church which has been under constant shell fire for so long a time. The two phases of thirteenth-century glass are thus represented side by side in the Museum, and furnish an excellent basis of comparison with the fifteenth-century English window in the room adjoining, described in the BULLETIN for March, 1913.

W. F. STOHLMAN.

AN EARLY BOOK ABOUT ETCHING

IN connection with the etched portrait of the Emperor Charles V and his brother Ferdinand, and with Dürer's etching of the Agony in the Garden, noticed in recent numbers of the BULLETIN, it is interesting to note that in February last B. H. Innes Brown presented to the Museum a little quarto of 22 pages bearing the following quaint title:

> ARtliche kunste mancherley weyse Dinten vnd aller hand Farben zubereyten / . . . Auch wie man schrifft vñ gemelde auf stäheline / eysene waffen / vn dessgleychen / etzen

soll. . . . Gedruckt zu Nurenberg durch Simon Dunckel im M.D.xxxi. Jar.

at the bottom of which appears the minute signature of the late Dr. Friedrich Lippmann, who was for many years at the head of the Berlin Print Cabinet.

Whether this is actually the first printed book to tell about etching, of course no one can tell, but it is the earliest one referred to by either Harzen or Koehler in their classical essays on the beginnings of etching.[1] The book itself, as its title advertises, is nothing more than an ordinary collection of trade recipes, and, to judge from its peculiarly crabbed language, was the work of some artisan who threw together rather hastily a number of his shop formulae. The spelling in particular is erratic, the author evidently having proceeded on the theory that if he spelled each word in as many ways as he could he would be sure to get it right at least once.

THE VIRGIN ENTHRONED, STAINED GLASS
FRENCH, LATE XIII OR EARLY XIV CENTURY

The only other copy of the text which I have seen is that in the possession of Professor Paul J. Sachs of Harvard College. His copy was printed at Augsburg by Heinrich Steyner in 1531, and its title reads:

Allerhand Farben / vnd mancherlay weyse / Dünten zübereyten. . . . Auch wie man schrifft / vnd gemaelde auff Stahel vnd Eisen / etzen soll. . . . Gemert vnd gebessert /. . . . Gedruckt zü Augspurg durch Heynrich

[1] *See* Harzen, in Naumanns Archiv, 1859, p. 119, Koehler's book, Etching, N. Y. 1885, his article in Zeitschr. f. d. Kunst. N. F. IX, p. 30, and his introduction to the Grolier Club's Dürer Catalogue, N. Y., 1897.

Steyner / Im Fünffzehen hundert vnd drey vnnd dreysigsten Jare.

So far as the "Gemert vnd gebessert" is concerned, it seems to have consisted chiefly in introducing further Augsburg quirks of spelling into the already quite cheerful insouciance of the Nuremberg printer and author, as save for the last five pages, which contain additional recipes, it is nothing more than a non-textual reprint of the 1531 book.

The text is particularly interesting in that it makes no specific reference to the use of etched plates for printing, the idea of its compiler evidently being that the methods of incising metal surfaces explained by him should be used only for decorative purposes. In this he was but recording the practice of the armorers, who for a long time had used the etching process for the decoration of their wares. A number of beautifully etched swords and pieces of armor of the Maximilian period are to be seen in the Museum collection, and a comparison of them with the reproductions of early printed etchings contained in Pauli's Inkunabeln der Radierung affords quite convincing testimony that the draughtsmen took the etching process from the armorers, and in the beginning used it just as they took it. The making of etched plates for printing was a comparatively recent development in 1531, as the earliest dated impression from an etched plate that has so far been recorded is a little plate by Urs Graf of Bâle, of 1513, while the earliest prints made by the etching process can be dated back only to about 1500, and then only by circumstantial evidence that leaves much to be desired in the way of accuracy.

The recipes in the Artliche Kunste explain in large measure the rude appearance of many of the early etchings on iron, their frequent foul biting (the technical name for places in which the acid has worked through the protecting layer of etching ground and pitted the plate), the rough edges of the etched lines, and their curious shallow quality. The three references to the etching ground are especially interesting, as in one case the ground consists simply of wax, and in the other two of either red or yellow lead tempered with linseed oil. That anything at all could have been produced with such covering materials, let alone such prints as those produced by Dürer, Beham, and the members of the Hopfer family, is legitimate matter for wonder, although it must be noted that Bosse in his celebrated Treatise on etching, first published in 1645, at a time when Callot and Van Dyck had done their work and Rembrandt was at the height of his power, recommends a ground composed solely of candle grease (wax) and olive oil cooked together. The ingredients of the mordants or acids recommended in the Artliche Kunste are remarkably similar to those referred to by Jehan le Begue in his famous manuscript[1] as having been copied from a book lent to him by a certain Father Dionysius at Genoa in 1409, and to that given by Bosse. The chief interest of the recipes, therefore, is largely that they show as nothing else the continuity of the etching technical practice from 1409 to the present time, since Bosse's prescriptions are given in the current edition of the Encyclopédie Roret as still having a practical value. Incidentally they demonstrate that the delicate process of etching to which we are nowadays accustomed was not so much the result of any discovery as of the application of a well-known method to different problems.

W. M. I., Jr.

[1] *See* vol. I of Mrs. Merrifield's Original Treatises, p. 77 et seq.